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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,484	08/04/2006	Karl Merz	Q96129	8204
23373 7590 02/22/2008 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER ESHETT, ZEALALEM	
			ART UNIT 3748	PAPER NUMBER
			MAIL DATE 02/22/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/588,484

**Applicant(s)**

MERZ, KARL

**Examiner**

Zelalem Eshete

**Art Unit**

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/88)  
Paper No(s)/Mail Date 8/4/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

### **DETAILED ACTION**

This Office action is in response to the preliminary amendment filed on 8/4/2006.

#### ***Claim Objections***

1. Claim 8 recites the limitation "the bead" in lines 2,3. There is insufficient antecedent basis for this limitation in the claim.

#### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,2,7,9-13,15,18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Mertz (WO01/98020).

Regarding claim 1: Mertz discloses a camshaft, comprising a shaft onto which one or more annular cams are slid and are fastened by positive and/or non-positive connection, characterized in that the cams are produced from one or more profile strips by forming, in particular bending, into annular form and welding together of the free ends (see abstract, figure 1).

Regarding claim 2: Mertz discloses the shaft is of tubular configuration (see figure 1).

Regarding claim 7: Mertz discloses the free ends of the cams are welded together by means of resistance welding (see abstract).

Regarding claim 9: Mertz discloses the cams are produced in such a way from a profile strip of thickness which varies over the strip length that the cams enclose the shaft with an angle of enclosure (UW) which is greater than the angle of enclosure which is predefined by the cam profile if the strip thickness is constant, and in particular measures  $360^\circ$  (see figure 7).

Regarding claim 10: Mertz discloses the profile strip has two shoulders disposed symmetrically to a center plane (see figure 7).

Regarding claim 11: Mertz discloses the profile strip has in the middle a thickening (see figure 7).

Regarding claim 12: Mertz discloses the cams are produced from a profile strip of constant thickness, and in that, on the inner side of the ring of the cam, the angle of enclosure (UW) is enlarged by a forming process, in particular is brought to  $360^\circ$  (see figure 4).

Regarding claim 13: Mertz discloses the cams, on the inner side of the ring in the region of the elevation, have an indentation (see figure 4).

Regarding claim 15: Mertz discloses a method for producing a camshaft in which method cams are produced from one or more profile strips by bending and subsequent welding together of the free ends and are then fastened on a shaft at a predefined location and in a predefined alignment, characterized in that the cams are positively and/or non-positively connected to the shaft by being slid onto the shaft (see abstract, figure 1).

Regarding claim 18: Mertz discloses the production of the cams, a profile strip of varying thickness is used, such that the cams enclose the shaft with an angle of enclosure (UW) which is greater than the angle of enclosure which is predefined by the cam profile if the strip thickness is constant, and in particular measures  $360^\circ$  (see figure 7).

Regarding claim 19: Mertz discloses on the inner side of the ring of the cams, means for creating a positive connection to the shaft are produced by a forming process, which means comprise, in particular, projections or ribs which protrude radially inward (see figure 4).

Regarding claim 20: Mertz discloses when the profile strips are transformed into the cams by an additional forming step, in particular by the impression of an indentation, material is transported outward in the axial direction in the region of the elevation of the cam and is heaped up there in such a way that the finished cam encloses the shaft with an angle of enclosure of  $360^\circ$  (see figure 4).

Regarding claim 21: Mertz discloses the additional forming step is performed after the elevation of the cam has been configured by forming methods (see figure 2).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-6,8,16,17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mertz in view of Umezawa et al. (5,598,631).

Regarding claims 3,4,16: Mertz discloses the claimed invention as recited above; however, fails to disclose, the shaft, in the sections in which the cams are placed, has an enlarged external diameter, circumferential beads are incorporated in the shaft, the associated cam is subsequently slid onto this section of the shaft.

However, Umezawa teaches the shaft, in the sections in which the cams are placed, has an enlarged external diameter, circumferential beads are incorporated in the shaft, the associated cam is subsequently slid onto this section of the shaft (see figure 1,3). Umezawa further teaches that such arrangement provides a tight connection (see column 1, lines 60 to 67).

It would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify the system of Mertz by providing the arrangement as taught by Umezawa in order to provide a tight connection as taught by Umezawa.

Regarding claim 5: Mertz as modified above discloses the cams have on the inner side of the ring means for creating a positive connection to the shaft (see figure 4).

Regarding claim 6: Mertz as modified above discloses the means for creating a positive connection comprise projections or ribs which protrude radially inward (see figure 4).

Regarding claim 8: Mertz as modified above discloses the cams have a recess in the region of the weld seam on the inner side of the ring, which recess receives the bead formed during the welding (see figure 4).

Regarding claim 17: Umezawa discloses the enlargement of the external diameter, circumferential beads are created on the shaft by a rolling operation (see column 3, lines 30 to 35).

6. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mertz in view of Rowell (4,233,832).

Mertz discloses the claimed invention as recited above; however, fails to disclose the profile strips are created from a round wire by forming methods, in particular by rolling methods.

Rowell teaches the profile strips are created from a round wire by forming methods, in particular by rolling methods through a single rolling station (see column 2, lines 20 to 30).

It would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify the system of Mertz by providing the arrangement as taught by Rowell in order to reduce the manufacturing steps using single rolling station as taught by Rowell.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mertz in view of Hiraoka et al. (4,969,262).

Mertz discloses the claimed invention as recited above; however, fails to disclose the cams are produced from a profile strip which has two layers of different material lying one above the other.

However, Hiraoka teaches cams having two layers of different material lying one above the other (see abstract).



It would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify the arrangement of Mertz by providing two layer cams as taught by Hiraoka in order to achieve desired engineering properties of composite cams.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zelalem Eshete whose telephone number is (571) 272-4860. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Zelalem Eshete/  
Primary Examiner, Art Unit 3748

